Redacted material below is non-responsive as well as exempt from required disclosure under the FOIA.

From: Damien Houlihan
To: Houlihan, Damien
Subject: Fw: Mount Tom Station Shortnose Sturgeon BA Response from NMFS
Date: Wednesday, June 19, 2013 8:51:20 AM
Attachments: gravcol.gif
1D444425.gif
1D573356.gif

Damien Houlihan, Chief
Industrial Permits Section
Office of Ecosystem Protection
US EPA

(617) 918-1586
----- Forwarded by Damien Houlihan/R1/USEPA/US on 06/19/2013 08:50 AM -----

From: Damien Houlihan/R1/USEPA/US
To: John Nagle/R1/USEPA/US@EPA
Date: 06/29/2012 09:30 AM
Subject: Re: Mount Tom Station Shortnose Sturgeon BA Response from NMFS

[redacted]

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John Nagle---06/28/2012 05:10:12 PM---Damien: 13 points from NMFS that require responses from EPA. I gave brief responses to a few obviou

From: John Nagle/R1/USEPA/US
To: Damien Houlihan/R1/USEPA/US@EPA
Date: 06/28/2012 05:10 PM
Subject: Mount Tom Station Shortnose Sturgeon BA Response from NMFS

[redacted]

[redacted]

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JHN

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----- Forwarded by John Nagle/R1/USEPA/US on 06/28/2012 05:04 PM -----

From: John Nagle/R1/USEPA/US
To: Christine Vaccaro <christine.vaccaro@noaa.gov>
Date: 06/28/2012 03:17 PM
Subject: Re: Mount Tom

Hi Chris:

Thanks for getting back to us so quickly. Some of these questions may take time to fully address, others may not (depending on your level of satisfaction with the answers). Before we get started, I just wanted to make sure you were able to review the four attachments included with the BA.

For example, questions # 4 and # 5 appear at first reading as if they can be addressed by Attachments III and IV. The thermal mapping depicted in Attachment III was conducted on August 14, 2010 in an attempt to capture worst-case summer conditions of low flow, warmer ambient conditions and maximum electric generation. You can measure how far downstream the plume travels before it mixes to within 0.5 C of the upstream temperature at two discrete depths. That is the most recent thermal field monitoring data for Mt Tom. The CORMIX modeling performed in May of 2011 used the field data collected in August 2010 to "ground truth" the model results and construct the maps presented in Attachment IV. Spring and summer conditions using one and two circulating water pumps were modeled. There are even vertical profiles of the degree to which the plumes mix vertically. These are the most recent thermal plume studies for Mt. Tom.

Page 6 of the BA describes the thermal plume scenarios that impact the least surface area and the greatest surface area of the Connecticut River. The downstream distance of 330 meters (rater than feet) was noted for the least impact, which took place under spring conditions. All 16 model runs assume

maximum facility electric generation, resulting in the highest delta T's across the condensers. The only change in operation at the facility that can be noted is the reduction in generation over the past several years (therefore, less heat and other discharge constituents to the river), but this could change quickly depending on the price of electricity in the region and the ability of other power plants to meet demand. Natural gas is a very cheap source of fuel for power plants right now. Mt. Tom runs on coal.

I have attached two graphs which depict Mt. Tom operation for your information.

I am trying to get the exact dimensions of the corrugated metal wall that shields the thermal discharge from Outfall 001. We drove the boat up into the discharge in 2010 to get the discharge temperature before mixing. I estimate the dimensions are approximately 30 feet straight out from the shore and perhaps 50 feet downstream. I will verify the exact dimensions, but the wall does not run for the entire downstream distance of the thermal plume, unless the facility is generating at a very low level.

We'll try to get you the information you need as soon as possible.

Thanks,

JHN

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Christine Vaccaro ---06/28/2012 11:57:00 AM---Hi John, I finally got through the BA and have compiled a number of

From: Christine Vaccaro <christine.vaccaro@noaa.gov>
To: John Nagle/R1/USEPA/US@EPA
Date: 06/28/2012 11:57 AM
Subject: Mount Tom

Hi John,
I finally got through the BA and have compiled a number of questions/analysis requests/comments that will hopefully get us on our way to official initiation of the formal consultation for Mt. Tom.

My requests/comments are as follows:

1) Could you provide the previous water quality monitoring results in a tabulated form? Any violations? A list of violations and the corresponding exceedence concentrations of pollutants would also be good?
-also, could you include the frequency and extent of thermal violations over the dataset (if any)?
-also, include an analysis of these discharges over the past 20 years and how any long-term effects have been avoided and/or minimized.....

2) Are all water quality standards met at end of pipe? (except temperature?)
-particularly for the non-contact cooling water (since dilution is low)--also, any violations of WQS?
-if not at end of pipe--where are standards met? How far downstream/midstream? shortnose sturgeon may leave the channel to forage--so analysis should better explain why impacts from the discharge will be avoided if fish are in the vicinity.

3) In the past 20 years (since 1992 permit) have there been improvements to the BAT that is used to reduce pollution? If so, what? If not, it seems that there should be some requirements to reduce pollutants--yet we are basing our BiOp on the 20 year old conditions? Please elaborate.

4) Are there more recent thermal plume studies? Have the extent of the plumes changed due to any updates at the facility?

5) The man-made wall channels heated effluent into the river for mixing--how far does the plume extend beyond the wall before ambient temperature (or at least within the WQS range) is reached? Does this occur in the river where fish could have contact with the plume, or is the WQS reached at the end of the wall before fish/larvae, etc. could have contact with the plume? 330 feet is mentioned at one point, but is the wall this long? Please elaborate.

6) Is the upper range of the WQS (68-83) used as “meeting the standard”? What is the length of the plume before the ambient temperature is reached especially during the spring when water temperatures will not be as high as 83 degrees and sturgeon are much more acclimated to cooler waters as they move upstream to spawn? Please elaborate and provide analysis of potential thermal shock impacts.

7) How much of the plume over 83 degrees could be exposed in the river at any time? (this may cause impacts to shortnose sturgeon). The 2008 308 report from Firstlight discusses thermal shock (referenced above). Please provide some additional analysis as to how impacts of thermal shock will be avoided in these scenarios (especially in early spring)?

8) Larval exposure to the plume may be less of a concern than fish swimming upriver to spawn in the early spring-- Please elaborate on how effects will be minimized to potential spawners moving to the Montague site?

9) Has there been modeling on the zone of influence from the CWIS? How far away from the intake are larvae/fish, etc. impinged from? You mention that the intake structure is the first point of contact, but is there a suction field that extends further and could pull small drifting larvae into the CWIS? Is there a gradient in the intake velocity? E.g., within 10 feet the intake velocity is 1.3 fps, but within 1 foot its 2.1 fps, etc.? Please detail further.

10) What are the concentrations of biocides/chlorine used in the CWIS as water is brought through the system? Impinged fish may be exposed to these chemicals. Please provide an analysis of these effects from the facility.

11) The thermal plume study of 1974 indicates that greatest impacts of the plume have been on benthic macroinvertebrates. These organisms provide the forage base for sturgeon when they move out of the channels into shallower areas to feed (as well as in the channel where foraging also occurs). Please provide an analysis on how the effects of the plume on the forage base has been minimized?

12) Wedge-wire screens could reduce impingement/entrainment--I'm assuming that EPA had tried to suggest this technology (as detailed in the 308 informational report on the CWIS) to the proponent? It should be noted that these measures may be recommended as Conservation Recommendations in our Biological Opinion, because this would potentially reduce impacts.

13) Please provide an analysis on the effects of the currently used electric-fish barrier on shortnose sturgeon, since this is the currently used method to reduce impingment at the station.

I wanted to make sure I got through the BA before sending you these requests/questions/comments. I apologize for the length, but I attempted to consolidate things as much as possible.

Thanks!
-Chris

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